

ABSTRACT

The Hot Melt Coating (HMC) is a fast, reliable, cost-effective, and environment-friendly technique that eliminates the need for aqueous or organic solvents in drug product design. This technology is attracting attention from regulatory bodies due to its adherence to environmental sustainability and safety standards. The conventional pan coaters or fluidized bed coaters, with minor modifications, are used in HMC, offering multiple applications in dosage form design.

In this study, HMC was used to assess its potential in masking the taste of Tenofovir. The drug was formed into pellets through extrusion and spheronization and then coated using Gelucire 43/01 and Precitol. The prepared pellets were evaluated for their taste masking ability using spectrophotometric and taste panel methods. Furthermore, the HMC-coated pellets were compressed into tablets without compromising the taste masking.

Moreover, the stability of Sitagliptin using HMC was also investigated. Sitagliptin phosphate monohydrate (SPM) tablets were prepared by direct compression and coated with stearic acid and palmitic acid using the pan spray method. The coated tablets were assessed against Pharmacopoeial specifications and subjected to stability testing. The stability data indicated no significant changes in appearance, drug content, and drug release under stability conditions.

In conclusion, HMC can effectively enhance the taste masking and stability of drugs such as Tenofovir and Sitagliptin, showcasing its potential as a solventless, eco-friendly, and effective technique in drug formulation.

Keywords: Tenofovir, Sitagliptin, Threshold Bitterness, Precirol, Gelucire, Stearic Acid, Palmitic Acid, Hot melt coating, Taste masking, Eco-friendly, Stability, Solvent-free.

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